North Lorinna (Cethana) Combined Annual Report 2012 – EL 29/2006 and EL16/2008 (Cethana Project)

Mineralised veins from Cethana West Prospect.

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Summary

This report is the fifth Annual Report for the North Lorinna (Cethana) exploration licence (EL29/2006) and is submitted in a Mineral Resources Development Act (1995) compliant format by Dove River Pty Ltd a wholly owned subsidiary of Pluton Resources Ltd. (Australian Stock Exchange Code: PLV, hereafter Pluton). Pluton also submits the report on behalf of joint venture partners Gujarat NRE Minerals (ASX code: GNM), Metalstocks Australia (Formerly Southern Ocean Science Pty Ltd) and John McDougall.

Pluton's primary focus is to add value to the Cethana licence by demonstrating the potential for large-scale porphyry-style mineralisation in close proximity to the Cethana magnetic anomaly. The potential for other bulk tonnage mineralisation styles is also being considered.

The licence covers ground that has similar characteristics to copper-gold districts in New South Wales including the Cadia, Endeavour and Goonumbla deposits. These characteristics include the setting and chemistry of the host rocks, as well as the styles of mineralisation and related alteration. Pluton also believes the Grasberg deposit in Irian Jaya has similar alteration characteristics and similar mineralisation may be buried at depth below the Cethana Magnetic anomaly. For this reason Pluton has been committed to deep drilling.

Work by Pluton for the period up until March 2012 included reconnaissance ground truthing of the a new forestry coup off Dolcoath Road (Cover Photo) and the 5 Channel EM anomaly previously identified as being prospective (John McDougall, joint venture partner, 2004) in the WTRMP data. Two drill holes have been run through the Hylogger under the pilot program offered by MRT. This included recent drill hole CETD4 which was drilled from the margin of the Cethana magnetic anomaly on a southerly azimuth to intersect the magnetite veins encountered in drill hole CETD1.

Preliminary analysis of drill hole CETD4 Hylogger data suggests that there is hydrothermal amphibole in the form of actinolite associated with this magnetite veined zone. The presence of actinolite in the alteration assemblage is exceptionally encouraging as the mineral is definitive of mafic potassic alteration assemblages in dioritic porphyry systems. A second hole was drilled in the previous anniversary year coincident with the Campbells Reward chargeability anomaly. The best drill intersection was 13m @ 0.12% Cu, 0.07g/t Au and 28ppm Mo, this hole has been scheduled for hylogging. Pluton believes a vector to mineralisation may be present within amphibole abundance and wavelength data.

Cethana requires further technical review, more particularly the 3D architecture and identification of structural and lithological traps for skarn and other hybrid hydrothermal systems. Additional drilling may then we warranted to attempt to identify any apophyses to the Cambrian granitic source or any other structural or geophysical targets eg: the intersection of the major growth fault and thrust positions (yet to be plotted) or the Cethana West EM anomaly. The main concern for the JV is the apparent depth of concealment of the mineralised source rocks.

Approximately $712,000 has been spent on exploration to date with the majority of this on drilling. No reduction in the current licence area is requested.

Note – all coordinates referred to in diagrams are AGD66, zone 55.

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Introduction

Pluton Resources Limited is an Australian Stock Exchange listed mineral exploration company managing and conducting exploration on EL 29/2006 (Cethana) for metallic minerals by way of a wholly owned subsidiary Dove River Pty Ltd on behalf of it's joint venture partners. Pluton coninues to assess the tenement primarily for porphyry style alteration systems and mineralisation with a primary objective of identifying potential for bulk tonnage copper-gold mineralisation. The tenement was attractive for exploration due to similarities in aspects of the geology to porphyry-style copper-gold districts on mainland Australia and possible hybrid porphyry-VHMS systems in Tasmania eg: Mt Lyell.

Tenure

A tenement application (ELA 46/2004) for an area of about 15km^2 was made by John McDougall and Southern Ocean Science Pty. Ltd. (SOSM) in 2004. The licence application was subsequently joint ventured with Gujurat NRE Minerals (Gujurat). A new application (a joint venture between Gujurat and SOSM) over a portion of this area was then approved as EL 29/2006 (9 km^2) on the 4th April 2007.

EL29/2006 was then partnered with an earn in period for Pluton Resources (Pluton). Pluton has earnt 60% in to the project through drilling and field based sample collection and geophysics with Gujurat contributing 33.3% and Pluton contributing 66.6% subsequent to the earn in date. SOSM hold a free carried interest of 10% to bankable feasibility.

The exploration licence is located within the Mt Read Strategic Prospectivity Zone. This provides for security of exploration tenure by way of compensation of reasonable cost of work conducted (or resource defined) if a change in the tenement's land status results in the licence being revoked.

The Oliver's Creek licence EL16/2008 has been granted and covers the area previously applied for to the south of the current licence. The licence covers private land and is held in the same 60/30/10 proportion as the original licence. No work has been completed on this licence, however "joint project" status by MRT has allowed sharing of expenditure and combined reporting commitments.

Location and land classification

The licence is located about 15km south of the township of Sheffield (pop approximately 1000) and about 60km from port facilities at Devonport (figure 1). The licence land classification consists of State Forest, MDC Informal Reserves, Regional Reserve, lakeside Hydro land and sits adjacent to Lake Cethana (a Hydro-Electric lake).

Topography

The topography of the licence is variable with a relatively flat area in the centre of the tenement and Lake Cethana covering the incised topography of the hydro dam flooded Forth River, contours range from 230m at the lakes edge to 680m on Oliver's Hill. The slopes above the Lorinna Road are steep with areas below (west of) the road mostly moderately steep. 'Golden point' extending into the Lake in the west of the licence is moderately steep.

Vegetation and Soil

Vegetation comprises wet and dry eucalypt forest typically dominated by Eucalyptus Viminalis, Obliqua and Amygdalina spp. On wetter south facing slopes and near river banks there is dogwood scrub and Acacia Dealbata forest. Rainforest is occasionally present adjacent to creeks. Undergrowth is dependent on how dry the site is, but typically consists of spiky heath or ferns.

A thin soil profile <1m is generally developed throughout the major rock units in the tenement with outcropping bedrock generally restricted to steep slopes, road cuttings, ridge tops, cliffs and creek/river beds. A deeper soil profile is developed over Tertiary basalts and Tertiary sediments. A talus is commonly developed over the Ordovician Sandstone and a coarse talus is commonly developed over Cambrian volcanics.

Access

Access to the tenement is via Lemonthyme Road (C139) and then un-sealed road (locally known as River Road). Internal access within the licences is via Old Lorinna Road, formed roads (eg: Wilks Road) and four wheel driveable fire breaks and tracks. Previous access to the north of Lorinna has been closed by the Kentish Council due to safety concerns with sections of the road north of the licence boundary. Considerable negotiation was required to gain access to the CETD4 drill site north of the gate defining the closed section of Lorinna Rd.

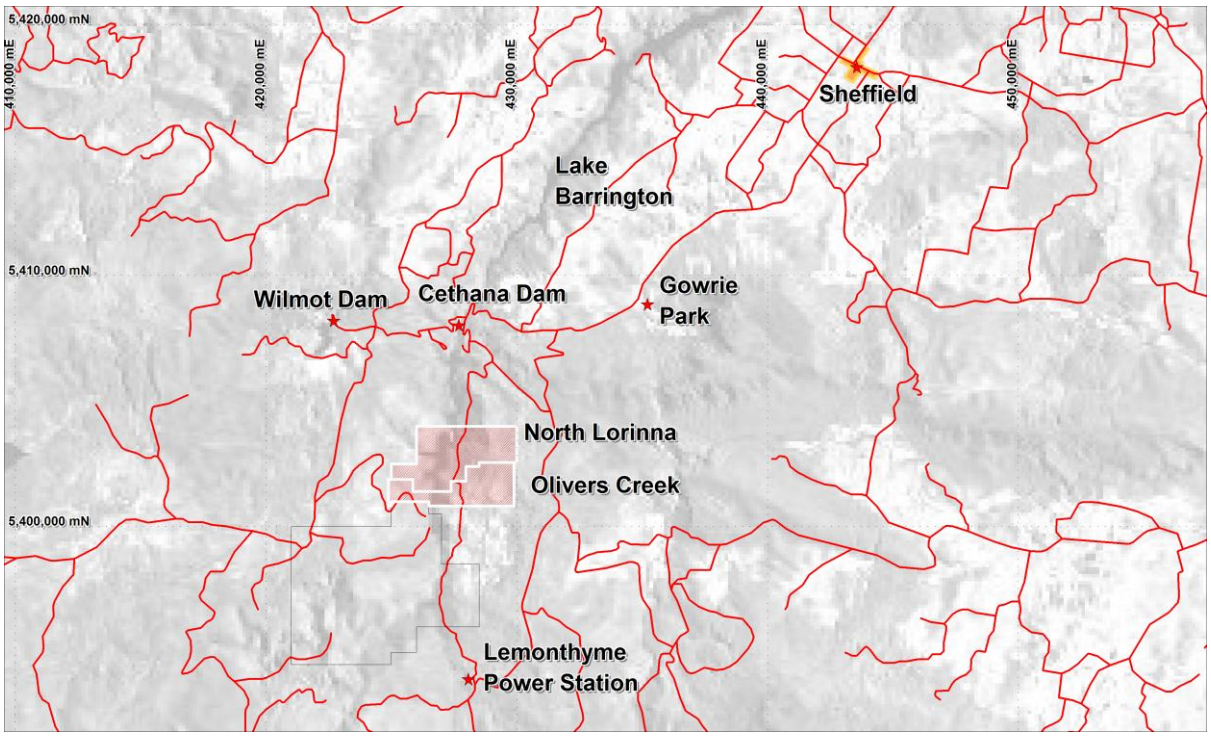

Figure 1 – Location of EL29/2006 and EL16/2008 relative to population centres and other granted Tenements (Dove River) controlled by Pluton Resources (1:100,000 Tasmap topographic base, AGD66 – Zone 55)

Geology

EL 29/2006 (Cethana) and EL16/2008 are contained within the northern portion of the c500Ma Cambrian Mt Read Volcanic belt (MRV). The MRV comprises mainly acid and lesser mafic volcanics and associated intrusive rocks. The MRV unconformably overlies Proterozoic metasedimentary rocks and, is itself unconformably overlain by Cambro-Ordovician siliciclastics and limestones. Rocks to the north of the licence are intruded by the Devonian Dolcoath Granite and there is in part a variable veneer of Tertiary basalt, sedimentary rocks and sediment.

The Mt Read Volcanic belt is highly mineralised. It contains numerous and some very large polymetallic VHMS-style deposits (e.g. Hellyer, Que River, Rosebery) and volcanogenic porphyry-VHMS hybrid copper-gold deposits (e.g. Mt Lyell, Henty).

A description of the known lithologies and observed variations within the licence and potential correlations are summarised below.

Cambrian volcanics

The Cambrian volcanics within the licence area have not been assigned a formal correlation with the Mt Read Volcanic stratigraphy. It has been inferred they should be grouped with the Eastern Quartz Phyric Sequence (Corbett, 2003) or the Tyndall Group (Herrmann, 1989 in Fleming and Castro, 1989). More recent work by Pluton suggests that correlation with any one part of the MRV may be simplistic.

Mixed volcanic and volcaniclastic rocks

A quartz-rich volcano-sedimentary sequence was mapped within the tenement as Lorinna Greywacke on regional maps by Jennings (1963). This sequence comprises angular clast rich poorly sorted sandstone, pumecious sandstone, and quartz rich volcaniclastic sandstones. Fine ‘grain flow’ greywackes and possible volcanics of near identical composition to the quartz rich volcaniclastics were observed in drill core on the adjacent Dove River licence (a Pluton held licence).

A second sequence was mapped as Bull Creek Volcanics, Burns (1960) subdivided the Bull Creek volcanics into the Upper Porphyry, Geales Bridge Member and Lower Porphyry Member. Reid (1963) agreed with these subdivisions. The Bull Creek Volcanics are likely to be the main unit encountered in drilling and within the licence. The sequence has superficial similarities to the Tyndall Group. The ‘porphyry’ units mentioned are almost certainly quartz rich volcaniclastics or quartz phyric lavas.

Dove Granite

Although the Dove Granite is not known to outcrop in the licence area it is of regional significance. The Dove Granite is regionally mapped as three occurrences, one in each of the Mersey, Forth and Dove valleys. Montgomery (1893) remarked on the similarity between granite at Gads Hill with Devonian Dolcoath Granite located north of the licence. In contrast, on visiting the Five Mile Rise Goldfield, Twelvetrees (1913) concluded that the granite showed greater affinity with other Cambrian age granites of the West Coast. In producing the last geological map and explanatory notes of the area, Jennings (1963) described a relationship of granite intruding what he thought to be Ordovician rocks. He concluded that the Dove Granite was Devonian. Radiometric K-Ar and Rb-Sr ages determined by

McDougall and Leggo, (1965) firmly suggested the Dove Granite is Cambrian, albeit with some outlying Ordovician ages that were attributed to argon loss. Unfortunately, Jennings interpretation persists in citation through much of the literature and company reports until the 1980's.

The reality is that few workers completed little if any work on the Dove Granite. Pluton is the first company to systematically map and sample the granite to the south of the current licence, mainly to determine if the Dove Granite is of the right composition to produce copper-gold porphyry deposits. Work is underway to examine the geochemistry of granitic rocks in the region. The presence of this granite provides a potential 'parent rock' for porphyry mineralisation within the tenement.

Dolcoath Granite
Again this granite is not known to occur in the licence area, however it is of regional significance and is described by Jennings (1963) as a Quartz-Microcline>Plagioclase granite with trace biotite and zircon. The granite is thought to be an unlikely source of mineralisation associated with the magnetic anomaly.

Owen Group
Conglomerate and sandstone sequences are regionally unconformable on Middle Cambrian volcanic rocks. However no true conglomerates occur at the base of the Ordovician on the licence. At Cethana the Ordovician rocks observed in drill core is a bioturbated coarse to pebbly sandstone. The sequence has been identified by several previous workers as Moina Sandstone. The sandstone dips gently (15-20 degrees) to the South forming a veneer over the Cambrian stratigraphy and is likely to be unconformable on the volcanics.

Several kilometres northeast of the licence, the Moina Sandstone is underlain by thick sequences of Roland Conglomerate. The absence of the conglomerate units on the licence may indicate extensional conditions in the late Cambrian. The structures controlling this facies variation may be coincident with west-northwest-trending aeromagnetic linears including the main structural trend of the Cethana Anomaly.

Gordon Limestone conformably and gradationally overlies the Moina Sandstone just south of the licence near Lorinna. Both this and the Moina Sandstone were faulted during the Devonian Tabberabberan Orogeny.

Tertiary Basalt
The Tertiary Basalt at the Cethana prospect has been identified through regional mapping and on the current grid. Herrmann in Fleming and Castro (1989) estimated Tertiary Basalt flows over much of the region to be only a few tens of metres thick, this appears to be true of thin basaltic soils in the south of the grid, however this would be confirmed should drilling be planned in this location.

Tertiary Sediments
Tertiary sediments resembling fine lake sediments were encountered to 45m in CETD2. Similar sub-basaltic sediments were encountered in drilling south of the licence at the Powerful Prospect, this suggests a Tertiary age.

Review of previous work

Prior to the current tenement
(Exploration History from previous annual report)

In 1859 James Smith discovered gold in the Forth River at “Golden Point” located north of the later developed Campbell’s Reward Mine (Twelvetrees 1913). Campbell’s Reward was discovered by the Campbell Brothers and opened in 1882. The discovery was prospected for several years by the brothers and by 1887 the lease was held by John.H.Glover (lease documents) and in 1890 the Campbell’s Reward Company was formed and took over the leases from Glover.

Twelvetrees (1913) described Campbell’s Reward as being located on the “new road to Lorinna on the eastern bank of the Forth River” (now referred to as the Old Lorinna Road in this report) however the workings were abandoned at this time. The Campbell’s Reward workings are mentioned in a number of government reports, however their isolation meant that they were rarely visited and never described in any geological detail. The mine was used to float a company in about 1890, however this venture appears to have lasted only a few years. The gold was reported to be in free and barbed wire form occurring within a kaolin vein which widened out into a 30-38cm barren vein. The vein was rich in silver and this made it difficult to market the ore (description by A. Campbell to Twelvetrees 1913 – could be either Angus or Alex Campbell).

In 1963 (Jennings) the adit accessing the workings (described as being just below the old Lorinna Rd) had been cleared a little and although in poor condition was accessible to 73m beyond which there was fallen ground. Veins similar to the described main lode were present previous to the 73m mark.

Preamble on the Cethana Magnetic anomaly
The Cethana magnetic anomaly is an aeromagnetic feature first identified by the Mt Lyell mining and Railway Co in 1967. It was subsequently identified by John McDougall and Alistair Reed of Southern Ocean Science Pty Ltd in Western Tasmanian Regional Minerals Program data and thought to be a previously unknown anomaly. The subsequent review of literature has identified a long history of name changes for the anomaly which are summarised below.

The anomaly was first described as “Anomaly 24” - a NW-SE trending feature identified on an east-west ¼ mile spaced survey. Anomaly 24 had an intensity of 1400 gammas, the highest amplitude anomaly in the whole survey area. Anomaly 24 soon became “Anomaly A” (Webb, 1968; Foster, 1969) and then “Lorinna East” (Askins 1980) then to complicate things the Anomaly was referred to as Lorinna North with the “Powerful” magnetic anomaly then being assigned “Lorinna East” (Smyth, 1981). In 1987 the anomaly was rediscovered and renamed by CRA as ‘Anomaly 36’ (Von Strokirch, 1987) which could easily lead to an incorrect conclusion that the ‘Anomaly 24’ of Mt Lyell was a different feature.

MT LYELL (1965-1971)

Modern exploration began in 1966-67 when the area was examined by the Mt Lyell Mining and Railway Company Ltd as part of exploration for base metal or tin mineralisation within EL8/1965.

The Mt Lyell Co. undertook an aeromagnetic survey and a regional -80# stream sediment survey for tin, copper and zinc (Reid, 1967). A close association between zinc and copper was noted regionally however individual results were considered doubtful with known anomalous areas not all registering on the survey. Reid (1967) concluded that there could be real interest in the copper and zinc anomalies if it could be confirmed (by resampling) that the tenor of mineralisation at known localities such as Round Mount were not being identified.

Several areas were recommended for follow up stream sediments including the possibly anomalous copper (22ppm) stream sediment anomaly found to be coincident with anomalous zinc (150ppm) and taken from the small creek draining the western end of magnetic anomaly 24 - the Cethana aeromagnetic anomaly.

Particular anomalies were followed up by more detailed exploration consisting of soil geochemistry and geological mapping on grids and reconnaissance geophysical surveys with VHEM equipment and a magnetometer (Foster 1969).

The magnetic anomaly at Cethana first identified by the Mt Lyell mining and Railway Co as “Anomaly 24” with a NW-SE trending feature identified on an east-west ¼ mile spaced survey. Anomaly 24 had an intensity of 1400 gammas, the highest amplitude anomaly in the whole survey area. Originally interpreted as 200-500 feet below surface with a dip of 86 degrees south, 500-1200 feet wide and a susceptibility of 12000x 10-6 and 14000x10-6 c.g.s units. By comparison of the anomaly to Savage River (127000x10-6 c.g.s units) the susceptibility of the anomaly was attributed to 5-6% magnetite by volume and 10% by weight (Zarzavatjian, 1966). The anomaly was believed to be located within the Bull Ck Volcanics below Ordovician cover (Reid 1967) due to modelled depth.

A ground magnetics survey was recommended by Webb (1968) after discussion with K.O.Reid. Webb who noted that the Cethana Anomaly “lies at the junction of an WNW-ESE trend with a N-S trend and minor NE-SE (typing error?, -SW) trend therefore has a good structural position for mineralisation”. Webb also noted the proximity of Campbell’s Reward Mine to the anomaly.

Ground magnetics were conducted over Anomaly 24/Anomaly A (the Cethana anomaly) in 1967-8. Peak magnetism was found to be associated with north dipping sheared quartz-magnetite-chlorite schist on the southern side of the main Cethana aeromagnetic anomaly. The results of rock chip samples collected from the schist were not reported, but did not reveal ‘any.... significant economic concentrations of elements'. In contrast, a small number of soil samples collected on the southern flank of the anomaly revealed cobalt anomalism of 380ppm, as well as lesser Zn and Cu anomalism (c100ppm).

Mt Lyell Co. geologists were uncertain as to whether Co anomalism was due to Tertiary basalt. However, the geochemistry of 16 Tertiary basalts from the region (provided courtesy of John Everard, Mineral Resources Tasmania) show an average Co content of 50ppm, with

an SD of only 7ppm. If the residual soil value of ~400ppm is derived from the basalt then it is highly unusual. (See recent rock chip data for explanation)

Reid (1967) also recognised that there were two ages of granite (the Dove Granite is now considered to be Cambrian) and therefore a possibility of two phases of mineralisation, the possibility of Cambrian mineralisation being remobilised in the Devonian was not precluded.

Part of EL8/1965 was relinquished in 1971 (approx 35km^2), however the part containing the current EL was kept due to the sheared and pyritic nature of the Bull Creek Volcanics in the zone adjacent to the BCF which had 'similar lithological characteristics to the Mt Lyell sulphide deposits and similar age host rocks'. The Bull Creek volcanics in this zone were considered to represent a worthwhile target (McKibben, 1971). Later in the 1970's they concluded the probability of locating an economically viable deposit of their target type was low and relinquished the whole licence.

As a result of their investigations, the Mt Lyell geologists recommended more detailed soil sampling (including Au) and two drill holes. However, subsequent years saw exploration focused on other areas. This, coupled with a disastrous loss of base camp due to flooding of the Iris River saw work on the Cethana anomaly never completed and the ground was finally relinquished.

COMALCO (1974-~1980)

In 1974, the Cethana anomaly was included within exploration licence 7/74, held by Comalco. Like EL8/65, EL7/74 included large tracts of land and included deposits located north of the outcropping Dolcoath granite. Comalco's exploration was primarily focused on locating extensions to fluorite mineralisation previously found at Moina (TCR's 78-1305 A-D, 78-1306, 78-1389). The fluorite was to be used in Comalco's aluminum smelters. Most reports up until 1980 deal almost exclusively with exploration in the Moina area.

Like the Mt Lyell company, Comalco embarked on a regional stream sediment program in the mid 70's (TCR80-1416). However, unlike Mt Lyell, Comalco used -20# (mesh) in the mistaken belief that -80# would not yield enough fine material in the steep terrane.

Ironically, Freeport had already run tests a year or so earlier in areas south of EL46/2004 (TCR73-977) and had shown that sampling using -40# underestimated results using -80# by 60% to 85%. Comalco did ultimately realise their mistake when areas of known mineralisation failed to show up in -20# data. They switched to using more conventional -80#.

Streams north and south of the Cethana anomaly were sampled using only -20#. Like the Mt Lyell company, Comalco did not include the small seasonal streams draining the Cethana anomaly. Not surprisingly, Comalco's -20# results show only very weak zinc anomalism (c85ppm) and moderate F anomalism (500-1300ppm) in the vicinity of the Cethana anomaly.

Comalco went on to explore the Cethana anomaly further. Unlike the Mt Lyell company, however, Comalco assumed that magnetite associated with the Cethana anomaly was of Devonian age. This exploration model appealed because a Devonian deposit was more likely to yield a fluorine-rich 'wrigglite' skarn, similar to that hosted by Ordovician rocks at

Moina. A program of gridding, ground magnetics, geological mapping and soil sampling (Pb, Zn, Cu, Co) was undertaken over the Cethana anomaly.

The assumption was made that mineralisation was Devonian. What must have been disappointing to Comalco geologists was the almost complete lack of metal anomalism in Ordovician rocks. Samples of quartz-veined scree, typical of the Ordovician sandstone, were also barren. The geologists did note Cu and Pb anomalism in Cambrian rocks overlying the Cethana anomaly but went on to conclude that this reflected nothing more than ' elevated background'. This, despite values in soils up to 32 times that already calculated as background for the Cambrian volcanics.

Given proximity to Campbell's Reward, it was again recommended that the area be sampled for gold. Once again sampling for gold was not done.

SHELL (1980-1985)

EL7/74 was transferred to a joint venture to the Shell company of Australia in early 1980 (Smyth, 1981). Like Comalco, Shell considered its focus to be Devonian mineralisation associated with the main wrigglite/pyrrhotite/sphalerite skarns in the Shepherd & Murphy Mine (Moina), and a possible low-grade Sn-Au zone in the Tin Spur area.

Shell reviewed Comalco's exploration of the Cethana anomaly (now renamed Lorinna North). They conducted their own regional aeromagnetic survey and noted that measured magnetic susceptibilities in surface rocks at Cethana did not account for the intensity of the aeromagnetic anomaly at Cethana.

A 144m percussion hole PD1 was drilled approximately in the centre of the anomaly but away from previously detected geochemical anomalism and distal to the Campbells Reward Mine (incidentally from the quarry where Pluton have drilled their first diamond hole).

PD1 passed through 58m of apparently Tertiary cover before intersecting weak metal anomalism in Cambrian magnetite-altered volcanic. The hole was assayed every 2m through cover but only once every 10m in the mineralised volcanic. The hole suffered from water problems and sample dilution. Although only mildly anomalous in copper (the log showing up to 280ppm Cu and 290ppm Zn), the results were mistakenly under-reported as being a maximum of only 105ppm Cu and gold was not assayed.

Susceptibilities measured from drill chips were believed at the time to explain the anomaly as being a magnetite-altered andesite. No attempt was made to determine the cause of the alteration.

Shell also noted that the Comalco grid was not centred on the anomaly but was rather biased south of the anomaly and into areas of Ordovician and Tertiary cover. This was probably due to poor registration of the aeromagnetic anomaly noted in the 1960's geophysical data. Instead of collecting new samples, Shell re-assayed soil samples previously collected by Comalco, but this time for Sn, W, As, and Bi. They did not explore the possibility of extensions to Pb and Cu anomalism Comalco had previously identified in Cambrian rocks along the western edges of their grid.

Like Comalco, Shell assumed a Devonian age for mineralisation, consistent with the age of mineralisation in their main areas of focus around Moina. Unlike Moina, they found no appreciable mineralisation at Cethana.

Shell re-submitted two lines of Comalco soil samples for gold assay. PD1 had already shown that Cu-Zn anomalism extended no more than a few meters into overlying Tertiary cover. Yet, only six of 39 soil samples resubmitted for Au were from soils overlying Cambrian rocks. The balance were from areas of thick Ordovician or Tertiary cover. None of the samples were from areas previously showing copper or lead anomalism. None were from the vicinity of the Campbell's Reward Goldmine. All the samples were up hill and/or in separate catchments to sites previously showing metal anomalism. All samples produced <50ppb Au, by regional standards in porphyry systems, this level of Au is now considered anomalous.

CRAE (1985-1988)

In 1985, CRAE became managers of EL7/74 in a three-way joint venture with the Commonwealth Aluminum Corporation and Shell. CRAE embarked on another very widely spaced reconnaissance stream sediment survey (TCR86-2554). However, the only sample collected from the vicinity of the Cethana anomaly was upstream of the Lorinna Road, both up-stream and east of the Cethana anomaly

In 1986/7 CRAE reprocessed and reinterpreted Shell's aeromagnetic data (TCR87-2700). They 'rediscovered' the Cethana anomaly although this time it was referred to as Anomaly 36. It was again noted to be the largest anomaly within the region and, again, the association was made between the anomaly and the Campbells Reward Goldmine. CRAE disregarded that anomaly as a basic volcanic containing high magnetite. This interpretation made no reference to the earlier work already identifying the rock as variously rhyolitic, dacitic and andesitic. It also did not consider that the magnitude of the anomaly exceeded that easily explained by most basic Cambrian volcanic rocks known from the Mt Read Volcanic belt.

Exploration licence 7/74 was subsequently dropped, with the joint venture maintaining tenure over the Moina fluorite deposit via Retention Licence (RL10/1988).

RGC (1988-1990)

The Cethana anomaly was included in EL8/88, held by RGC (TCR89-3038). RGC again undertook reconnaissance stream sediment sampling, collecting both -200# and panned concentrate samples from 84 locations. In contrast to CRAE, RGC collected 2 samples from the streams north of and below the Cethana anomaly. One -200# sample proved weakly anomalous in Au (15ppb) relative to surrounding areas (<5ppb), whereas the panned concentrate returned a significantly higher 135ppb Au.

Importantly, CRAE's sample from above the Lorinna Road returned only 0.1ppb Au (TCR86-2554). The anomalous samples from RGC, therefore, could only have originated from the Cethana anomaly.

RGC also embarked on two re-interpretations of regional geophysical data previously collected by Shell and a more recent survey over the area by the Mines Department (TCR89-3038 and 90-3163). This was the first time that the Cethana anomaly was

recognised as associated with one of two regional-scale north-northwest trending magnetic linears.

RGC did not conduct any further work in the vicinity of the Cethana anomaly. Rather, they concentrated subsequent exploration efforts in Ordovician rocks in the Five Mile Rise and Round Hill areas. Ironically, soil results for Cu in the Round Hill area were significantly less than that that had already been identified at Cethana by Comalco. RGC relinquished most of its interest in the Moina and Cethana areas in 1990.

MRT work post 1990

In 1999, the area was remapped by Mineral Resources Tasmania and a number of samples collected for petrological examination. The geologists mapping the area were unaware of the Cethana anomaly but collected samples containing up to 20% galena from areas previously shown to be anomalous for lead in soils, these samples were not assayed.

Western Tasmanian Regional Minerals program aeromagnetic, radiometric and electromagnetic data for the area was subsequently released in 2000/2001. In 2003, these data were used to help assess the potential of the area to yield granite-related mineralisation (UR2003-16). The Cethana anomaly was recommended for field checking. This was not done due to a lack of funds.

In 2003, a review of the stratigraphy of the Cambrian Mt Read Volcanics in the area again mentions the aeromagnetic anomaly east of Lake Cethana (UR2003-17). This report again concludes that the anomaly is likely to be a Devonian skarn, despite work already concluding this not to be the case.

Work to March 2012

Drilling

Four diamond drill holes (total advance 1929.2m) have been drilled in the vicinity of the large (1.5x1km) Cethana magnetic anomaly. An independent review of previous exploration work by Dr Greg Corbett suggested drilling the IP anomalies identified by Pluton in 2008 may locate apophyses to the Cambrian Dove Granite. These chargeability anomalies are coincident with the main magnetic anomaly. A further review by Dr Michiel Van Dongen has suggested that structural traps and favourable lithologies may be present at depth to trap copper bearing fluids in skarn like traps. Both mineralisation models are currently under consideration.

CETD1 was drilled into the apparent centre of the aeromagnetic anomaly, CETD2 was located in a position thought to test the Campbells Reward Chargeability anomaly, the hole was unsuccessful in reaching the target due to incorrect geophysical interpretation. CETD3 was located to check this anomaly from a more favourable position. CETD4 was stepped back from CETD1 to test under the mineralised intervals encountered in CETD1.

Disseminated and vein style chalcopyrite mineralisation has been encountered in all holes. The stronger mineralisation is accompanied by apparent ‘mafic potassic’ alteration and significant disseminated pyrite mineralisation. Peripheral alteration within the hole appears to be a propylitic assemblage of chlorite-epidote veins with albitic selvedges. Significantly near the sheeted magnetite veined zones, some of the primary albite in the volcanic pachage appears to be hematite altered. In core this has been identified as potassic alteration, however it is probably retrograde alteration of the propylitic-sodic assemblage. This ‘dusting of feldspars’ has been identified as a key alteration feature of the Cadia deposits of Lachlan Fold Belt porphyries in New South Wales.

With this encouraging alteration and mineralisation assemblage a review of the petrology done by Paul Ashley identified that key alteration minerals appeared to be missing from the ‘hotter’ parts of the system, more particularly the lack of actinolite and anhydrite from the possible potassic veins. Subsequently when the pilot Hylogger program was offered by MRT and the ‘silicate identifying’ addition to the machine was made available, Pluton immediately took the opportunity to see if actinolite could be identified.

The technique has proved successful and it is now hoped that by hylogging previous holes that the intensity and wavelength of amphiboles can be used to vector to ore in conjunction with a 3D analysis of fault and veined zone orientations.

Hole_ID	From	To	Significant Interval
CETD1	213.00	218.00	5m @ 0.21% Cu, 0.13g/t Au, 4g/t Ag, 144ppm Mo and 137ppm Co
CETD1	245.00	263.00	18m @ 0.1% Cu, 0.08 g/t Au, 2.6 g/t Ag, 120ppm Mo and 73ppm Co
CETD2	125.00	127.00	2m @ 0.14% Cu, 0.12 g/t Au and 1.6 g/t Ag
CETD2	232.00	236.00	4m @ 0.16% Cu, 0.09 g/t Au and 2.1 g/t Ag
CETD3	236.00	239.00	4m @ 0.085% Cu, 0.065 g/t Au and 91ppm Mo
CETD3	254.00	277.00	24m @ 0.09% Cu, 0.05 g/t Au, 23ppm Mo and 22ppm Bi
including	254.00	257.00	3m @ 0.13% Cu
and	265.00	277.00	13m @ 0.12% Cu, 0.07g/t Au, 28ppm Mo
CETD4	353.00	366.00	13m @ 0.025% Cu, 0.02g/t Au, 0.4g/t Ag, 35ppm Mo
CETD4	399.00	430.00	31m @ 0.04% Cu, 0.03g/t Au, 0.3g/t Ag, 36ppm Mo
incl	408.00	410.00	2m @ 0.1% Cu 0.08g/t Au, 1.5g/t Ag, 70ppm Mo
CETD4	663.00	672.00	9m @ 0.024%Cu, 0.025g/t Au, 0.4g/t Ag, 53ppm Co, 59ppm Mo

Table 1 – Significant intersections from drilling

Review of previous work by Dr Michiel Van Dongen

Dr Van Dongen concluded the Cethana project area reveals similarities with key features of selected economic porphyry deposits. Similarities noted were:

- Alteration mineralogy

- Potential size of the mineralising system

- Multiple hydrothermal events, incl. brittle structures in DR1

- Evidence for skarn (replacement type) mineralisation

- Type of mineralising hydrothermal fluids (oxidising and saline)

- Similar submarine magmatic setting

Differences to typical economic porphyry systems were noted, however many of these have been identified since (these are noted in italics):

- Some key alteration minerals are absent where expected; *this included actinolite which has now been confirmed by spectral analysis*

- Lack of abundant (quartz-) veining, especially in CETD4, which is interpreted as an unfocussed fluid flow zone; *Intense Quartz veining is present in CETD1 (not reviewed by Van Dongen) and at surface between CETD2 and CETD3 and also at surface north of the Cethana West anomaly*

- Lack of abundant vein-controlled alteration, *vein controlled alteration is present at surface at Cethana West, see photos*

- Lack of abundant sulphides, *this may occur at depth or at positions along strike eg: Cethana West*

Review of Geochemistry with reference to Spectral Analysis

A review of geochemical data from recent rock chip sampling revealed only gross alteration features associated with the Cethana magnetic anomaly. In particular it has been noted that the Ca and Mg values in the vicinity of the magnetic high are perceptibly depleted, probably due to the introduction of Na bearing and K bearing fluids by the main alteration event. Also the introduction of Fe as magnetite and pyrite could involve some replacement of earlier minerals. It has been confirmed from spectral analysis that there is a trend in both chlorites and white micas towards two populations where a wavelength difference probably represents the difference between the regional greenschist metamorphism and the metasomatically altered primary minerals.

Most importantly, actinolite has been noted in the alteration assemblage with the magnetite veining deep in drill hole CETD4. The presence and intensity of hydrothermal amphiboles in this alteration suite bears a good correlation with copper and gold grades (copper and gold have previously been identified as having a high correlation coefficient). The figure below highlights the upward trend in copper and gold grades coincident with the presence and increasing intensity of actinolite in the drill core.

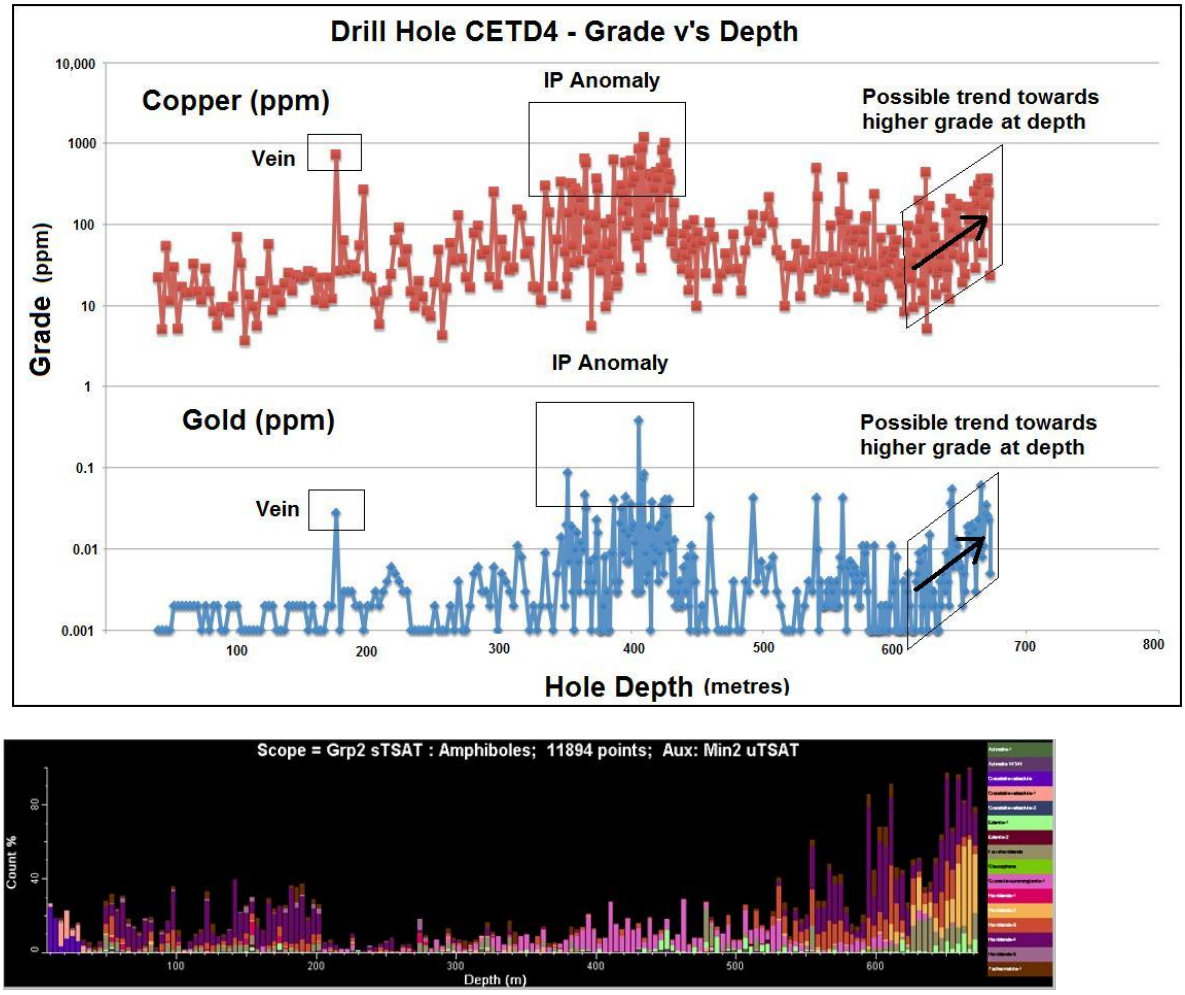

Figure 2 – Copper and gold grades plotted against hole depth drill hole CETD4 and preliminary interpretation of amphibole intensity down hole CETD4 at approximately coincident scale.

Review of Dr Paul Ashley's petrological interpretation of Cethana samples

All samples examined by Dr Paul Ashley in the suite show considerable modification of the primary mineralogy and textures due to imposed alteration and deformation phenomena. Observations and interpretations that indicated actinolite was indeed part of the mineral assemblage in contradiction to the geological reviews dome by Dr Greg Corbett and Dr Michiel Van Dongen are highlighted in bold below. Pluton believes these observations are significant given the apparent correlation between copper-gold and amphibole composition and intensity shown in figure 2.

Dr Ashley implied that most samples were affected by moderate to strong pervasive hydrothermal alteration at an early, pre- to syn-tectonic stage. Two main types of early alteration were noted as being apparent. The stronger type was feldspar-destructive, resulting in assemblages of fine grained quartz, sericite and chlorite (varying amounts of each and mostly with sericite > chlorite), in places with a little associated leucoxene (fine

rutile), pyrite and magnetite and/or hematite. This alteration is interpreted to range from propylitic to phyllic in character and is found in many of the felsic lithic-vitric tuffs and in the epiclastic rocks in CETD1. The other alteration type contains albite and/or K-feldspar, along with sericite, chlorite and leucoxene. **Most notably** Paul identified that in places, epidote, **actinolite** and pyrite **could have been present**. This type of alteration is probably of propylitic type, with the presence of K-feldspar being a reflection of primary rock composition (i.e. relatively potassic), rather than implying introduction of K (i.e. potassic alteration). Dr Ashley noted thsat in both of these alteration types, most primary igneous minerals were destroyed, with only quartz phenocrysts, apatite, zircon, and in places, FeTi oxide (titanomagnetite) being preserved.

The early alteration could have been due to broad scale hydrothermal circulation through a felsic volcanic-dominated pile (e.g. involving combinations of magmatic, marine and meteoric fluids) as well as due to low grade regional metamorphic processes (e.g. lower greenschist facies). The latter have definitely occurred and apparent in many samples in the suite by effects of penetrative deformation, expressed as a weak to moderate foliation and mainly defined by preferred orientation of sericite and chlorite. In places, there is also a strong preferred orientation of coarse lithic/vitric fragments, and the foliation can be observed in several rocks to wrap around relict quartz phenocrysts. About some relict quartz phenocrysts, there is local development of deformation-induced “pressure shadows”.

Dr Ashley interprets that post-dating the penetrative deformation, there is widespread indication in the majority of samples, for a subsequently imposed metamorphic and locally, metasomatic, overprint. There are two major new assemblages that have formed, with intergradation between the two. One shows development of minor through to common amounts of fine grained, randomly oriented biotite (ranging from greenish through khaki to brown in colour), and the other shows development of **actinolite, commonly with associated epidote**. As mentioned, there is gradation in-between, such that **actinolite + biotite ± epidote is a relatively common assemblage**. The differences in the new assemblages are ascribed mainly to host rock compositional control, with the apparently more felsic (and potassic) lithic-crystal tuffs and rhyodacite containing biotite (± recrystallised quartz, sericite and local K-feldspar, albite, magnetite, epidote), and the slightly more mafic compositions (e.g. dacite) containing a higher proportion of actinolite, epidote, as well as biotite, K-feldspar, albite, quartz, magnetite and titanite. There is good textural evidence for the new assemblages to overprint earlier-formed foliation and to cause destruction of earlier alteration minerals (mainly chlorite). In most samples, the new mineral assemblages are consistent with development under metamorphic conditions of the albite-epidote hornfels facies (and at least at biotite grade). However, in one sample (152858), there is minor development of disseminated and veinlike clinopyroxene (e.g. in the diopside-hedenbergite series), with the implication that metamorphic conditions have attained hornblende hornfels facies**. In fact, some of the green amphibole termed “actinolite” in the descriptions could be hornblende, but confirmation would need to be made by electron microprobe analysis. In a few samples, and most notably in CETD1 467.7 m, there is a conspicuous association of biotite with minor to significant magnetite, pyrite and traces of other sulphides (e.g. chalcopyrite, pyrrhotite, marcasite).**

As indicated above, the new mineral assemblages that have overprinted the earlier deformed alteration assemblages could be ascribed to the effects of thermal metamorphism (e.g. caused by a nearby intrusive), but there are features that suggest, at least in some samples, there has been metasomatic introduction of components. This may have been largely pervasive as there are few indications of any significant veining. The pervasive metasomatic effects could be implied by greater development of biotite (and minor associated magnetite, epidote) and patchy flooding and local veining by finely granular K-feldspar (± quartz). It could also be implied by the **local occurrence of irregular replacement aggregates of actinolite ± biotite ± epidote**, and in CETD1 442.6 m by intense replacement by epidote + chlorite (+ quartz, pumpellyite, carbonate, titanite, magnetite, pyrite). Similarly, **in a few samples, minor sulphides have developed in the new alteration assemblages**. Traces of tourmaline form part of the new mineral assemblage in 152848 and 152865. Consequently, it can be implied (but not proven) that there could have been at least minor hydrothermal introduction of components including K, Fe, S (Cu, B) and in places Ca, Mg and Fe. **The resulting alteration assemblages have affinities to transitional types between propylitic and potassic alteration and to "mafic potassic" alteration (the latter being <u>partly</u> controlled by host rock composition). This interpretation is confirmed by spectral analysis of the upper and lower parts of CETD4 where two different amphibole populations exist, one reflecting lithology and one reflecting alteration.**

Dr Ashley concluded most samples in the suite of generally felsic volcanic and volcaniclastic rocks display effects of early hydrothermal and/or low grade regional metamorphic alteration and imposed penetrative deformation. Subsequently, there has been an overprint of at least biotite grade thermal metamorphism, with the latter process accompanied in places by possible effects of pervasive metasomatic replacement. These overprinting effects could be due to a nearby intrusive, with possible introduction of K, Fe and a little S, Cu and B, and locally significant Ca, Mg and Fe mobility. The later alteration has affinities to transitional propylitic-potassic and "mafic potassic" alteration types.

Dr Ashley maintained from his thorough inspection of samples provided review that although these provide analogies with alterations proximal to some porphyry Cu-Au systems, the almost complete lack of fracturing and veining, and general paucity of sulphide mineralisation, suggest that if intrusion-related, the intrusive has not attained significant fluid saturation on crystallisation. **This is yet to be tested as no intrusive has been located within the anomaly**

Lead Isotopes

A suite of lead rich samples were obtained from existing drill core from Cethana and the adjoining Pluton controlled Dove River licence. Ordovician ages have been determined from the Dove River samples with the Cethana sample suffering from radiogenic contamination. The significance of the regional results will be discussed in the Dove River report. The sample chosen for Cethana was opportunistic and does not reflect the lead poor nature of typical pyrite within the suite. If anything there is a suggestion that this material is a Devonian overprint to the Cu-Au mineralised core. A short inspection of the core should clarify the paragenetic sequence of this spurious result.

Discussion of results

Given the results from spectral analysis of amphiboles, Pluton believes a vector to ore can be attained via further spectral work and a 3D model. Pluton believes a vector to mineralisation may be present within amphibole abundance and wavelength data.

Assay work is outstanding on gossan from the Cethana West EM anomaly identified in the review of geophysical data and a sample of peripherally altered rock to the north of the EM anomaly has also been submitted.

Reflecting on the independent work of the consultants, the Cethana prospect has alteration types typically associated with porphyry mineralisation suggesting that intrusive rocks occur at depth within the Cethana anomaly, however the nature of these may prove uneconomic. More work is however warranted to see if deep targeting of the Cethana anomaly or the Cethana West anomaly is viable as a target for economic porphyry mineralisation.

Pluton still believes the chance of a significant discovery on the Cethana licences is high because of the favourable metal correlations, alteration intensity and size of the magnetic anomaly.

Conclusions and Future Work

A review of available geophysical datasets has suggested further targeting of the geophysical anomalies could be warranted. Cethana requires further technical review, more particularly the 3D architecture and identification of structural and lithological traps for skarn and other hybrid hydrothermal systems. Additional drilling may then we warranted to attempt to identify any apophyses to the Cambrian granitic source or any other structural or geophysical targets eg: the intersection of the major growth fault and thrust positions (yet to be plotted) or the Cethana West EM anomaly. The main concern for the JV is the apparent depth of concealment of the mineralised source rocks.

The minimum amount of work in the upcoming year will include this analysis and the hylogging of outstanding drill core. Ground geophysics and drilling are both possible at Cethana west pending assay of the gossan and mapping is planned for the alteration located in the forestry areas to the north of the Cethana West Anomaly.

Environment

The existing drill pads are well rehabilitated. No material impact is present on either licence.

Expenditure

Total Expenditure for EL 29/2006 currently stands at $712,115 with $22,221 expended this year including expenditure on spectral analysis and lead isotope determination.

References

Askins, P., 1980. EL 7/74 - Moina General Area, Report on all investigations to December 1979, Commonwealth Aluminium Corporation Ltd. Exploration Department (TCR 80_1416)

Austin, G. and Serim, S., 1973. Exploration for Porphyry Copper, the Dove Granite area, Tasmania, preliminary field report, Cundill, Meyers and Associates Pty. Ltd. (Part of TCR 73_977)

Corbett, K.D. and McClenaghan, M.P., 2003. A review and interpretation of the Lower Palaeozoic geology of the Que River – Sheffield Area with particular reference to the Cambrian volcanic sequences, *Tasmanian Geological Survey Record 2003/17*, Mineral Resources Tasmania.

Fleming, M.J. and Castro, C.H. 1989. EL8/88 - Lorinna and EL36/88 - Round Mountain - Annual Report 1989, RGC Exploration Pty. Ltd. (TCR 89_3038)

Fleming, M.J. and Castro, C.H. 1990. EL8/88 - Lorinna and EL36/88 - Round Mountain – Report on Areas Relinquished on 22 August 1990, RGC Exploration Pty. Ltd. (TCR 91_3163)

Foster, M.J., 1969. Progress Report on Activities in EL8/65 Moina Area to March 1969, The Mt Lyell Mining and Railway Company Ltd. (TCR69_592)

Jennings, I.B., 1963. Middlesex 1:63360 Series Explanatory Report, Geological Survey of Tasmania.

Madden, J., 1997. EL30/1996 Mersey - First and final report for the Period 9 November 1996 to 13 November 1997, Rio Tinto Exploration Pty Ltd. (TCR 97_4097)

McDougall, I. and Leggo, P.J., 1965. Isotopic Age Determinations on Granite Rocks from Tasmania, Journal of the Geological Society of Australia Vol12, p.295-332.

McKibben, J.P., 1971, Interim Report on Moina EL8/65, The Mt Lyell Mining and Railway Company Ltd. (TCR71_812)

Montgomery, A., 1893. Report on the Mineral Discoveries in the Neighbourhood of Bell Mount, Old Series Report No.111, Geological Survey of Tasmania

Nye, P.B., 1933. Quarterly review of the gold mining industry of Tasmania for the quarter ending 30th June, Unpublished Report, Geological Survey of Tasmania.

Reid, A.M., 1919. The Mining Fields of Moina, Mt Claude and Lorinna, Geological Survey Bulletin No.29, Geological Survey of Tasmania.

Reid, A.M., 1919b. The Mount Pelion Mineral District, Geological Survey Bulletin No.30, Geological Survey of Tasmania

Reid, K.O., 1967. Progress Report on Activities in EL8/65 (Moina Area) to June 1967, The Mt Lyell Mining and Railway Company Ltd. (TCR 67_470)

Smith, J. Harcourt., 1898. Report on the Bell Mount and Middlesex Mineral Fields, Secretary of Mines Report 1898-99, Geological Survey of Tasmania

Smyth, W.D., 1981. Exploration Licence 7/74 – Moina Progress Report on Exploration during the Period 1/1/1980 – 31/7/1981, The Shell Company of Australia Ltd. Metals Division. (TCR 82_1728 part 1)

Twelvetrees, W.H., 1907. Report on the Bell Mount and Middlesex District, Secretary of Mines Report, Geological Survey of Tasmania

Twelvetrees, W.H., 1913. The Middlesex and Mount Claude Mining Field, Geological Survey Bulletin No.14, Geological Survey of Tasmania

Von Strokirch, T. 1987. Interpretetion of Aeromagnetic Data South of Shepherd and Murphy, CRA Exploration Limited (TCR87-2700)

Waller, G.A., 1901, Report on the Mineral Districts of Bell Mount, Dove River, Five Mile Rise, Mount Pelion and Barn Bluff. Secretary for Mines Report 1900-01, Geological Survey of Tasmania

Walsham, B.T., 1973. Report on Exploration Licence Area No. 12/73 in the vicinity of the Dove River, Freeport of Australia. (Part of TCR 73_977)

Webb, J.E., 1968. Interpretation of Airborne Magnetic Survey Staverton Area North Central Tasmania, The Mt Lyell Mining and Railway Company Ltd. (TCR 68_503)

Wilson, A., Cooke, D., and Thompson, J., 2002. Alkalic and high-K calc-alkalic porphyry Au-Cu deposits, A summary. CODES Special Publication 4, Giant Ore Deposits: Characteristics, genesis and exploration. p 51-55.

Zarzavatjian, P.A., 1966. Aeromagnetic Survey Staverton Area North Central Tasmania, AMEG Pty. Ltd. for The Mt Lyell Mining and Railway Company Ltd. (TCR66_431)

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Appendix 1 – Photos

Photo 1 – Sulphide-chloride vein with central sulphide suture – Cethana West

Photo 2 – Multiple chloritic vein orientations with probable albite selvedge

- Cethana West

Photo 3 – Quartz-chlorite “D veins” in two orientations – Cethana West

Photo 4 – Clotty chlorite-albite alteration with sulphide – Cethana West

Photo 5 – Weathered surface of chlorite-epidote-carbonate?-sulphide vein - Cethana West

Photo 6 – Gossanous material from Cethana West EM anomaly